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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/717,465
Filing Date: November 21, 2003
Appellant(s): CORJON ET AL.

MAILED

JUL 17 2007

GROUP 3600

Ed Tracy
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/29/2007 appealing from the Office action
mailed 9/8/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner, which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

10/717,672

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

GROUND OF REJECTION NOT ON REVIEW

The following grounds of rejection have not been withdrawn by the examiner, but they are not under review on appeal because they have not been presented for review in the appellant's brief.

Claims 1-2, 6-10, 18, 19, 23-28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan (3,936,013) in view of Bilanin et al (6,042,059).

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Claims 11, 12, 13 and 17 are rejected under 35 USC 103(a) as being unpatentable over Yuan in view of Bilanin et al as applied to claim 10 above and further in view of ordinary skill within the art.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,936,013	Yuan	2/1976
6042059	Bilanin et al	3/2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 2, 6-10, 18, 19, 23-28, 30 and 31 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yuan (3,936,013).

Re – claims 1, 7, 10 and 31: Yuan teaches an aircraft having two fixed wings (11) on each side of the fuselage (12). As the aircraft moves through the air, the wings cause the air to move such that they form vortices behind the aircraft. Yuan then goes on to disclose a tube (21) for blowing a jet of fluid through an orifice 22. The extended tube is attached to the wing 11 and at least a portion thereof extends therein (see Figure 2). Fluid from the fluid source enters a conduit 23 and ejects from an orifice opening 22. Yuan teaches that the location of the extended tube can designed according to the configuration of the wing planform which would allow the vortex

control system to operate most efficiently for a given configuration of the wings. (See Col. 3, lines 63+ - Col. 4, lines 3.) Yuan further teaches that the extending tube may be attached to the wing tip at a location anywhere between the leading and trailing edges (see Col. 4, lines 16-18) and that it is desirable to have jet mass flow along the extended tube varying in accordance with the vortex velocity variations to improve the efficiency of the fluid usage (see Col. 2, lines 37-42).

102(b) Analysis: It is the examiner's position that Yuan teaches the active step of generating a perturbation. A claim containing a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claim from the prior art if the prior apparatus teaches the capability of performing the intended use. The phrase "excites at least one internal instability mode of a core of the first eddy" is merely a statement of intended use of the "generating" step. The examiner re-asserts that the phrase "excites" is a desired outcome of the "generating" step. The limitation "excites" is not an individual method step. The limitation "excites" is limiting only in the sense that the prior art method steps must be capable of exciting the at least one instability mode to read on the limitation. It is the examiner's position that Yuan teaches this capability.

103(a) Analysis: In the alternative if it is held that the phrase "that excites at least one internal instability mode of a core of the first eddy" at most defines the type of "periodic perturbation" being generated then the examiner assert that Yuan teaches the capability of generating a predetermined wavelength. Furthermore the examiner

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asserts that the courts have held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). The wavelength is an optimum value. It would have been obvious to one to select a wavelength such that it is capable of exciting at least one internal instability mode of a core of the first eddy for the purpose of increasing the safety of the craft.

Re – Claim 2: the phrase “in the area adjacent a flap of the wing” is extremely broad and is read on by any device attached to the aircraft.

Re – Claim 6: the phrase “emitting a jet of fluid from the area adjacent the flap of the wing” is extremely broad and is read on by any device that is attached to the aircraft.

Re – Claim 8: the applicant has not defined what the velocity of the fluid is being measured against. The velocity of the aircraft in relation to the earth? The velocity of the aircraft in relation to the wind? The examiner asserts that momentarily the velocity of the fluid as it is emitted from the jet would have a velocity relative to the pilot (a person on the aircraft) that would have a velocity at least equal to (greater than) relative velocity of the aircraft. (It should be appreciated that the velocity of the aircraft relative to the pilot should be zero, when the pilot is not moving).

Re – Claim 9: Yuan teaches that one of ordinary skill in the art can emit the jet of fluid from a wing (see figure 2 and 3 that illustrate the fluid coming from the wing)

Re – Claims 18, 23, and 27: Yuan discloses a perturbation that is capable of corresponding to the vortex's Benard-von Karman instability.

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Re – Claims 19, 25 and 30: Yuan disclose a perturbation that is capable of inducing an increase in three-dimensional elliptic instabilities.

Re – claim 24: Yuan discloses generating the fluid from within the flap and emitting it there out.

Re – Claim 26: the jet of fluid is emitted orthogonally (at least parallel to) the flow around the wing, where the instantaneous velocity of the fluid is at least equal to the velocity of the aircraft relative to the pilot.

Re – claim 28: wherein the first and second periodic perturbations are capable of inducing an increasing in core diameters of the co-rotating eddies. It should be appreciated that the examiner rejected claim 28 in a similar manner to the other independent claims. The phrase “induce” is only limited to the capability of inducing. The claim reads as follows: “wherein the first and second periodic perturbation are capable of inducing an increase in core diameters of the co-rotating eddies”.

2. Claims 11, 12, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan as applied to claim 10 above and further in view of ordinary skill within the art. Yuan does not specifically disclose the diameters of the first and second vortices. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). It would have been obvious to one having ordinary skill in the art, at the time the invention was made to generate the perturbations so that their diameters are an optimum

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value for the purpose of actively destroying vortices for the purpose of increasing passenger/aircraft safety.

Re – Claim 13: the phrase “in areas adjacent a flap of the wings” is extremely broad and is read on by any device attached to the aircraft.

Re – Claim 17: the jets of fluid are “adjacent” the first and second wings (see Figure 3).

(10) Response to Argument

Applicant has argued that the examiner “ignored” the claim feature “the periodic perturbation having a predetermined wavelength that excites at least one internal instability mode of a core of the first eddy.” The examiner does not agree with this assertion. The examiner did not ignore the above-identified limitation.

Instead the examiner asserted that the phrase “excites...eddy” is a desired outcome of the “generating” step. The limitation “excites is not an individual method step. The limitation “excites” is limiting only in the sense that the prior art method steps must be capable of exciting the at least one instability mode to read on the limitation. It is the examiner’s position that Yuan teaches this capability.

Applicant has argued that Yuan does not teach the limitation “the periodic perturbation having a predetermined wavelength that excites at least one internal instability mode of a core of the first eddy” and therefore the claims are not properly rejection.

The examiner disagrees with this conclusion. Applicant does not consider the examiner’s comments that the phrase “excites...eddy” is limiting only in the sense than the prior art method steps must be capable of exciting the at least one instability mode to read on the limitation.

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Applicant has further argued that Yuan does not teach or suggest generating a perturbation having *any* wavelength. The examiner disagrees with this assertion. The examiner asserts that where Yuan is ejecting a fluid, this ejection will necessarily have a wavelength. Yuan teaches “intermittently blowing fluid” (see Col. 2, lines 45-50) and – “varying the intensity of fluid flow” (see Col. 3, lines 50-55). Further Yuan teaches, “the angle of the et can be adjusted during flight” (see Col. 4, lines 47-50). The examiner asserts that at the very least Yuan is teaching a longitudinal wave that “pulses” based on the intensity of the fluid jet.

Applicant has further argued that Yuan does not teach a “perturbation”. The word “perturbation” generally means: A small change in a physical system. The examiner asserts that Yuan teaches a “perturbation” by emitting a fluid flow into the Vortex. See for example Col. 3, lines 50-55 where Yuan states “The spacing and intensity of the blowing jets are so designed as to form a substantially jet sheet acting as a jet knife”.

The examiner asserts that Yuan’s disclosed apparatus is extremely similar to appellant’s disclosed embodiments (see Figure 3 to appellant). Yuan discloses a device for vortex control, like Appellant’s device. In Yuan, a tube (21) extends from an aircraft wing and blows jet fluid. Yuan states “Thus, the present invention uses the jet flow system to abate the circularly flow created near the wing tip and to alleviate the wing-tip vortices” (Col. 3, lines 59-61). Appellants device in the embodiment of Figure 3 is very similar to the device disclosed in Yuan. Appellant provides means 14 of an ordinary type

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for admitting jet fluid to create the perturbations to break up the vortices.” The examiner asserts the disclosed apparatus and the manner in which they are used are very similar.

The applicant has argued that claim 10 was improperly rejected because Yuan does not teach a 2nd perturbation. The examiner disagrees and asserts that Yuan teaches that the jet fluid device is used on both the right and left wings.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Stephen A Holzen/

Patent Examiner AU 3644

Conferees:

Robert Swiatek Robert Swiatek

Meredith Petravick MP